

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Dean P. Pfefferle et al.

Title: NON-CONDENSABLE PURGE
TECHNIQUE USING REFRIGERANT
TEMPERATURE OFFSET

Serial No.: 09/887,277

Filing Date: June 22, 2001

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Examiner: M. Shulman

Group Art Unit: 3744

REQUEST FOR RECONSIDERATIONCommissioner for Patents
Washington, D.C. 20231

Sir:

In response to the Office Action dated January 16, 2002, reconsideration of the rejected claims is respectfully asked.

Claims 1-20 are rejected under 35 U.S.C. §103 as being unpatentable over patent no. 5,400,613 to O'Neal. The rejection is respectively traversed.

The rejected claims are directed to an apparatus and method for purging non-condensables from a volume of refrigerant which, in the disclosed embodiment, is a recovery vessel of a refrigerant recycling system. Refrigerant from a refrigeration system, such as an automotive air conditioning system, is removed from the air conditioning system to the recovery vessel for servicing of the air conditioning system and then, after servicing is complete, is

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recharged to the air conditioning system. While the refrigerant is stored in the recovery vessel, non-condensables are purged therefrom in an automatic manner under control of a program-controlled processor. The purging operation is pressure-based. The temperature of vapor in the vessel is measured and an ideal vapor pressure for the measured temperature is determined. Then, the actual pressure in the volume is measured and compared to a target pressure which, at the beginning of a recovery operation, is equal to the ideal vapor pressure and, at the end of a recovery operation, is greater than the ideal vapor pressure. Purging occurs when the measured pressure is greater than the target pressure.

The O'Neal system is completely different. It discloses a purging system which is designed to be connected to a refrigeration system for purging non-condensables while the refrigeration system is operating. The O'Neal purge system is not pressure-based. Indeed, it involves no pressure measurement or determination at all, but is rather dependent solely on the temperature of the liquid refrigerant flowing from a condensing coil in the purge vessel (see column 4, lines 24-32). There is no sensing of pressure at all and, therefore, *a fortiori*, there is no comparison of measured pressure with a target pressure.

Independent claims 1, 8 and 15 includes at least the following limitations not found in O'Neal.

- a) a "pressure transducer" (claim 1), "pressure sensing means" (claim 8) or the step of "measuring the pressure" (claim 15). O'Neal does not determine and, indeed, is not interested in the pressure in its vessel 26.
- b) a temperature transducer for "measuring the temperature of vapor in the volume" (claims 1 and 8) or "measuring the temperature of the volume" (claim 15). O'Neal does not

measure the temperature of the vapor in his vessel 26, nor does he measure the temperature of anything therein. Rather, using a thermostat 54, he determines the pressure in a liquid line 45 outside the vessel 26 leading from the condensing coil in the purge vessel. (The thermistor 52 is used simply as a level sensing device - see column 4, line 3).

c) "a processor operating under control of a stored program" (claim 1). O'Neal controls his system with a solid state controller 53; which simply includes relays actuated by sensors. There is no software involved.

d) "determining an ideal vapor pressure in the volume" based on the measured temperature (claims 1, 8 and 15). O'Neal makes no such determination.

e) operating the purge valve in response to "measured pressure in the volume exceeding a target pressure" (claim 1) or exceeding a "first target pressure" or "second target pressure" (claims 8 and 15). There is no pressure comparison in O'Neal.

For all of the foregoing reasons, it is submitted that each of the independent claims 1, 8 and 15 and the claims dependent thereon is clearly patentable over the cited reference and, accordingly, the application is now in condition for allowance and the allowance thereof is respectfully asked.

Respectfully submitted,

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